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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,688	01/15/2002	Z. Valy Vardeny	UTU-10002/29	3863
7590	10/20/2004			EXAMINER
John G. Posa Gifford, Krass, Groh, Sprinkle, Anderson & Citkowski, PC 280 N. Old Woodward Ave., Suite 400 Birmingham, MI 48009			YAMNITZKY, MARIE ROSE	
			ART UNIT	PAPER NUMBER
			1774	
DATE MAILED: 10/20/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/047,688	VARDENY ET AL.
	Examiner Marie R. Yamnitzky	Art Unit 1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 28 July 2004.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1,3-8 and 10-26 is/are pending in the application.  
 4a) Of the above claim(s) 6-8,12,15-17 and 21-24 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1,3-5,10,11,13,14,18-20,25 and 26 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

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1. This Office action is in response to applicant's amendment filed July 28, 2004, which amends claims 1, 10, 13 and 19, cancels claims 2 and 9, and adds claims 25 and 26.

Claim 1, 3-8 and 10-26 are pending. (Contrary to applicant's remarks accompanying the July 28<sup>th</sup> amendment, claims 3, 4, 6-8, 12, 15-17 and 21-24 were not canceled in response to a restriction requirement. These claims were merely withdrawn from consideration.)

Because of the amendment to claim 1, previously withdrawn claims 3 and 4 now read on the elected species. Accordingly, claims 3 and 4 are now considered on the merits.

2. Claims 6-8 and 15-17 stand withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on December 03, 2003.

Claims 12 and 21-24 stand withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on October 24, 2003.

3. The rejection of claims 13, 14 and 18-20 under 35 U.S.C. 112, 1<sup>st</sup> paragraph, as set forth in the Office action mailed March 01, 2004, is overcome by applicant's amendment of claim 13.

The issue of antecedent basis for "the impurity" as raised in the rejection of claims 1, 2, 5 and 9-11 under 35 U.S.C. 112, 2<sup>nd</sup> paragraph, in the March 01<sup>st</sup> Office action is overcome in part by applicant's amendment of claim 1 and rendered moot in part by the cancellation of claim 9.

The rejection of claims 1 and 5 as anticipated by Epstein et al. (US 6,621,100 B2) is overcome by applicant's amendment of claim 1.

4. Claims 25 and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Support for the requirement that the magnetically active material be a ferromagnetic material is not fully supported by the application as originally filed. Applicant states that ferromagnetic materials fall within the broad category of magnetically active materials, and points to specific portions of the original disclosure as supporting new claims 25 and 26. The specific portions identified by applicant do not use the term "ferromagnetic", and applicant has not pointed to any of the specific materials identified in the specification as being ferromagnetic.

A generic disclosure of "magnetically active materials" does not provide sufficient support for a claim requiring the subgenus of "ferromagnetic" materials.

5. Claims 1, 3-5, 10, 11, 13, 14, 18-20, 25 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The scope of luminescent materials having an emissive singlet recombination channel and a non-emissive triplet recombination channel is not clear in light of the specification which teaches that singlet-emissive devices include phosphorescence based light emitting devices (e.g. see page 4, lines 14-20, p. 11, l. 5-10 and the abstract). It is not clear how a phosphorescence based light emitting material/device can be considered to be a singlet-emissive material/device.

Claim 3 recites “the processing includes a magnetic field”, but a magnetic field is not a method step per se. Claim 4 recites “the processing includes an increase in effective spin temperature”, but an increase in effective spin temperature is not a method step per se. The actual method step(s) within the scope of present claims 3 and 4 is/are not clear.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 5, 10, 11, 13, 14 and 18-20 stand rejected under 35 U.S.C. 102(b) as being anticipated by Garnier et al. (5,272,238) for reasons of record as set forth in the Office action mailed March 01, 2004.

The limitations of original claims 2 and 9 (now canceled) have been incorporated into amended claim 1. Claims 2 and 9 were included in the rejection as set forth in the March 01<sup>st</sup> action.

8. Claims 1, 10, 13, 18 and 19 stand rejected under 35 U.S.C. 102(e) as being anticipated by Wang et al. (US 6,312,835 B1) for reasons of record as set forth in the Office action mailed March 01, 2004.

The limitations of original claims 2 and 9 (now canceled) have been incorporated into amended claim 1. Claims 2 and 9 were included in the rejection as set forth in the March 01<sup>st</sup> action.

9. Claims 1, 11, 13, 14, 18 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Li et al. (US 2002/0076576 A1).

Li et al. disclose enhancing the luminescence efficiency of luminescent materials such as PPV by including deuterated hydrogen atoms in the polymer structure. Based on the prior art teachings, it is reasonable to expect that the deuterated hydrogen atoms facilitate low-frequency vibrations as required by present claims 11 and 20. See the whole published application, especially paragraphs [0007]-[0009] and [0025]-[0030].

Deuterated hydrogen atoms are magnetically active. Accordingly, the incorporation of deuterated hydrogen atoms in the polymer structure of a luminescent polymer meets the present method limitations of adding a magnetically active impurity to a luminescent material.

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10. Applicant's arguments filed July 28, 2004, have been fully considered but they are not persuasive.

With respect to the rejection under 35 U.S.C. 112, 2<sup>nd</sup> paragraph, applicant argues that "the fact that the claim at issue excludes phosphorescent materials does not render that claim imprecise within the meaning of 35 U.S.C. §112, second paragraph." This argument is not persuasive because it is questionable, in view of the specification, whether applicant is actually excluding phosphorescent materials from the claims. The examiner maintains that the scope of luminescent materials as defined within the present method claims is not clear in light of the specification.

With respect to the rejection based on the patent to Garnier et al., applicant argues that the patent does not suggest the use of its materials in any methods of the present invention and does not show or suggest any luminescent polymers. Applicant's arguments are not persuasive because Garnier et al. provide for various polymers that are inherently luminescent. With respect to the presently claimed method, the method requires incorporating a magnetically active impurity in a luminescent material. Garnier et al. incorporate a magnetically active material (a metallocene such as ferrocene) into a polymer chain such as polyphenylene, polythiophene or polypyrrole. Polymer chains such as polyphenylene, polythiophene and polypyrrole are inherently luminescent and incorporation of a metallocene such as ferrocene into one of these polymer chains meets the limitations of the method step set forth in present independent claims 1 and 13.

With respect to the rejection based on the patent to Wang et al., applicant argues that the patent does not show any materials, methods of devices meeting the limitations of the claims at issue. Applicant argues that certain terms recited in the present claims are absent from the Wang patent, implying that Wang therefore cannot anticipate the present claims. These arguments are not persuasive. As noted in the rejection as set forth in the previous Office action, aluminum is paramagnetic. Wang et al. teach that luminescence efficiency of organic chromophores is enhanced by combining aluminum ions with ligands formed by the chromophores. The chromophores themselves are inherently luminescent materials having an emissive singlet recombination channel and a non-emissive triplet recombination channel as would be apparent to one of ordinary skill in the art from reading, for example, Wang's teachings at c. 7, l. 24-51.

With respect to the rejection based on the published application of Li et al., this action is not made final because the rejection of claims 1, 11 and 18 is a new issue not necessitated by applicant's amendment. The limitations of original claim 9 (similar to the limitations of claim 18) have been incorporated in claim 1, and neither original claim 9 nor claim 18 was rejected as unpatentable over Li et al. in the prior Office action. However, deuterated hydrogen is magnetically active and therefore the examiner erred in not including original claims 9 and 18 in the rejection as set forth in the prior action. (Russell (US 5,152,955) supports the examiner's position that deuterated hydrogen is magnetically active. In particular, see column 10, line 65-c. 11, l. 42 of the Russell patent.)

With respect to the rejection based on the published application of Li et al., applicant argues that the rejection is procedurally/statutorily improper. Applicant argues that 35 U.S.C. 102(e) applies only to U.S. patents or certain international applications, not to published applications. Applicant is incorrect in this regard. Published U.S. patent applications are available as prior art under 35 U.S.C. 102(e) when "the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent" except for certain applications derived from international applications. A published application is available as a prior art reference as of the U.S. filing date of the application, unless the application derives from an international application, in which case other facts must be taken into consideration. Li's application is not derived from an international application. Accordingly, the published application of Li et al. is available as prior art under 35 U.S.C. 102(e) based on Li's filing date of December 07, 2000. Applicant's attention is also respectfully directed to MPEP 706.02(f) and 706.02(f)(1).

11. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax number for Art Unit 1774 is (703) 872-9306 for all official faxes. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

MRY  
October 18, 2004

*Marie R. Yamnitzky*  
MARIE YAMNITZKY  
PRIMARY EXAMINER

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